Notice of Allowability	Application No.	Applicant(s)	
	10/622,692	AKITA ET AL.	
	Examiner	Art Unit	
	John S. Chu	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/21/03.

2. ☒ The allowed claim(s) is/are 1-7.

3. ☐ The drawings filed on _____ are accepted by the Examiner.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All b) ☐ Some* c) ☐ None of the:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

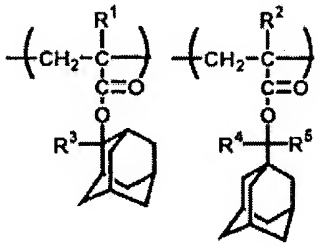
1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 7/21/03
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

John S. Chu
Primary Examiner
Art Unit: 1752

REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance: The claimed invention is drawn to the following:

> 1. A chemical amplification type positive resist composition comprising:
>
> (A) a resin which itself is insoluble or poorly soluble in an alkali aqueous solution but becomes soluble in an alkali aqueous solution by the action of an acid, and which contains a structural unit derived from p-hydroxystyrene and a structural unit represented by the formula (Ia) or (Ib)



(Ia) (Ib)

> wherein R^1 and R^2 each independently represents hydrogen or methyl, and R^3 to R^5 each independently represents alkyl having 1 to 8 carbon atoms; and
>
> (B) radiation-sensitive acid generator comprising sulfonic acid ester of N-hydroxyimide compound; and onium salt.

The claimed invention is found in the particular combination of the p-hydroxystyrene monomer and the structural unit of either (Ia) or (Ib) in a copolymer with the use of two known acid generators of a N-hydroxyimide and an onium salt.

The following references disclose the use of a copolymer having the claimed ingredient of (A), however lack the particular combination of a the recited photoacid generators with the claimed copolymer:

Patent publication to KOBAYASHI et al, '224290, Patent Publication to HATAKEYAMA et al '207201 and EP 1225,479 (NAMBA et al).

These references disclose the use of a p-hydroxystyrene monomer and a comonomer derived from adamantyl (meth)acrylate as claimed, however these references lack an explicit example using the claimed combination of a N-hydroxyimide and an onium salt photoacid generator which would anticipate the claimed invention. The reference to HATAKEYAMA et al discloses that the use of a combination of photoacid generators is known wherein a second acid generating compound can be used in the chemically amplified resist material which differs from a sulfonium salt or iodonium salt, such as sulfonate esters of N-hydroxyimide compounds (see subparagraphs [0060] – [0065]). Thus the skilled artisan is directed in the prior art references to use the combination of photoacid generatos as claimed in the current application.

The reference to FUJIMORI et al '884 is also cited to disclose a photoresist composition having the particular combination of the currently claimed photoacid generators wherein an N-hydroxyimide and a sulfonium salt are used together in the resist composition with a copolymer comprising a monomer derived from a lactone and a monomer derived from adamantyl. This reference lacks the claimed copolymer made from a polyhydroxystyrene monomer and a monomer derived from an adamantyl (meth)acrylate. None of the references cited anticipate the claimed composition, however, a case for an obviousness rejection may be present based on the use of known copolymers formulated with two known photoacid generators in a resist composition.

The examiner further relies on the comparative examples as disclosed in the current application of page 34, Table 1 wherein photoresist compositions having the claimed copolymer

and photoacid generators demonstrate improved effective sensitivity, resolution and shape over prior art compositions which use only a single photoacid generator. Here Examples 1-6 have been considered as showing unexpected results over the prior art compositions, thus overcoming any of the *prima facie* cases of obviousness that could have been made by combining the aforementioned cited references.

Because none of the prior art references of record anticipate the claimed invention and based on the comparative showing in the specification which would overcome an obviousness-type rejection, claims 1-7 are seen as allowable and passed to issue.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (571) 272-1329. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

The fax phone number for the USPTO is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PMR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John S. Chu
Primary Examiner, Group 1700

J.Chu
July 9, 2004